ANTARCTICA TODAY AND TOMORROW

BY

G. C. L. BERTRAM

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G. C. L. BERTRAM

William Evans Visiting Professor in the University of Otago, 1957, Fellow of St. John's College, Cambridge, Director of the Scott Polar Research Institute, Cambridge, 1949-56

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I. INTRODUCTION

This appraisal of Antarctica Today together with thoughts upon Antarctica Tomorrow, is based on a series of lectures given in the University of Otago in the early southern winter of 1957. I have to thank the electors to the William Evans Visiting Professorship and the University of Otago for the honour done to me in providing this happy opportunity to visit, speak and write in New Zealand. With great appreciation I also thank those many individual new friends who made my two academic terms in New Zealand so pleasant and I hope, in retrospect, profitable.

This attempted assessment of the affairs of Antarctica follows immediately upon my leaving the Scott Polar Research Institute in Cambridge, England, after being its Director for the seven years from 1949 to 1956. I gladly here pay tribute, too, to the staff and facilities of that British Commonwealth centre of polar information and research.

A part of the central core of this present statement has already been published by the Royal Institute of International Affairs, Chatham House in London following an address which I gave there on 4 December, 1956*.

In this present appraisal of Antarctic affairs, certain references are made to conditions and circumstances in the Arctic. This is done for several reasons, but more particularly to draw useful comparisons from what has already been accomplished elsewhere in somewhat similar surroundings, and to help illustrate the reality of developments which are naturally as yet less fully appreciated in the southern hemisphere.

The term 'internationalization', in connection with the future of Antarctica, has now gained a currency which is as wide as its more detailed definition is woolly. Again the need to seek reality is considerable.

Throughout the text rather frequent reference is made to the *Polar Record*†, the journal of the Scott Polar Research Institute. That extremely well-documented journal affords the most convenient route to original papers concerning, and happenings in, both Arctic and Antarctic science and affairs.

II. CONTINENTAL ANTARCTICA

Antarctica is a great uninhabited, frigid continent of 5½ million square miles, mainly covered with ice, even perhaps up to 10,000 feet thick. It is the most barren and isolated area on earth. Yet, despite these facts, Antarctica has now become the centre of a many-nationed activity on a scale far beyond what it has ever seen before. The factor of increase, compared with an assumed unity pre-war, could fairly be put at ten three years ago, but now the figure is a hundred. This astonishing increase is of course contemporaneous with the International Geophysical Year which runs from July 1957 to the end of 1958 in the first instance. This year of great effort in the earth sciences has come to have an Antarctic component far bigger than was originally envisaged.

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* 'Antarctic Prospect.' *International Affairs*, vol. 33, 1957, pp. 143-53.

† *Polar Record*, vol. 1- C.U.P., 1933-

But the ordinary observer may wonder why nations seem prepared suddenly to provide so lavishly for fundamental scientific research in an uninhabitated continent which for decades already over the major part of its area has been divided up among five mutually-recognizing sovereign powers. It is the naïve alone who are convinced that pure science is the sole stimulant. What indeed then are the motives for this vast increase of activity, research and expenditure by many nations in Antarctica, and just what is going on?

The coastal outline of Antarctica has now for the most part been roughly delineated. Inland flights chiefly by United States aircraft have demonstrated photographically the major features over a large proportion of the whole—features which now await true mapping with a sufficiency of ground fixes and other observations. This position is of course in sharp contrast with the Arctic regions where much true aerial photographic survey has already been accomplished to a sufficient standard of accuracy for general, if not for detailed, geological purposes.

This task of aerial photographic survey of the lands surrounding the Arctic Ocean may perhaps be regarded as intrinsically an easier task than that now confronting the makers of detailed maps of Antarctica. Yet the continuity, uniformity and enormous coverage of the Antarctic ice mass must in some sense greatly diminish the task before the surveyors, both topographical and geological.

Wide knowledge, even at a low standard of accuracy, can on occasion be truly helpful in determining policy. Yet it needs to be stressed that, in addition, spurious stimuli to effort in Antarctica have not been absent from the lips and writings of some enthusiasts of several nations. The presence of uranium in Antarctica is a true statement—for where indeed is it not present in small amounts? But so far it savours of deliberate misrepresentation to attempt to stimulate the ignorant to activity by reporting uranium in Antarctica.

Similarly, it is a true statement that were all the ice of Antarctica to be melted by cosmic or by artificial means, then sea levels throughout the world would rise by over a hundred feet with disastrous consequences to a large proportion of mankind. Yet so to misrepresent to the ignorant—who may yet be influential—the probable time-scale of any such occurrence is most certainly dishonest. But this is not to deny that geological prospecting in Antarctica and the study of climatic fluctuations are not very worthy and stimulating fields for activity.

III. MOTIVATION AND PRESENT ACTIVITY

There are five mutually-recognizing sovereign powers in Antarctica—Australia, France, New Zealand, Norway and the United Kingdom.

The first decade after World War II saw these five powers variously activated in their respective sectors of Antarctica. In brief, the decade 1945 to 1955 saw Australia embark upon an active official programme, first in her sub-Antarctic islands and then on the continent itself. The French government was stiffened by the fine field activities of unofficial enthusiasts to take over the development of her national Antarctic responsibilities. New Zealand did nothing. Norway became the major participant, at least in responsibility and cost, in the highly successful joint Norwegian-British-Swedish Antarctic Expedition of 1949-52 in her territory. The United Kingdom actively continued her development of the already existing Falkland Islands Dependencies Survey for primarily political reasons.

The first post-war decade having been completed, further stimuli came to the fore and were either quietly incorporated into official thinking or were pressed upon reluctant governments by amateurs whose enthusiasm, though sometimes in advance of their understanding of national requirements, was nevertheless of value in overcoming that official reluctance at least in one instance. The fast developing plans of the International Geophysical Year cast their influence far ahead. The 1955-6 southern summer then saw the beginning of the new era in Antarctica with the participation of an increased number of nations. And it is with the motivation of all nations taking part in activities in Antarctica during the present I.G.Y. that this present section attempts to deal. Present activity and motivation is the foundation on which the future will be built in addition to the history of activity in the past.

That a new era in Antarctica indeed is opening needs clearer recognition. Suddenly Antarctica now has applied to it the resources, the techniques and the wealth of experience from no less difficult operations in the Arctic. The United States pre-eminently, and Russia not far behind, both possess and feel it expedient now for the first time to use great resources in Antarctica on a scale without precedent. Their northern experience is immense. Yet great resources of men and materials are not deployed even by the very powerful without strong reasons.

In Antarctica the five nations regarding themselves as possessed of mainland sectors are capable of loss. Others can scarcely lose but may gain substantially by political instability now, with 'clarification' later rather than sooner. Thus seen, the policies of nations in Antarctica are expectably diverse, whether their whole policies are visible to the world or not. Yet though policies may not be entirely visible either through secrecy or lack of adequate formulation, motives may more easily be described.

Equally in the activities of persons and of nations a mixture of motives is to be expected. For convenience, now will be taken in order the five chief motives which have become relevant or dominant in the Antarctic story. They are the adventurous, the economic, the scientific, the political and the strategic motives. Of course these five are not entirely separable in practice nor successive in history and there may be further motives too. Expectedly lacking in Antarctica is religious zeal, that further powerful motive which played so great a part in the development of many other new areas of the world.

1. The Adventurous Motive. The first then is the adventurous motive. Adventure, curiosity, search for new lands, dissatisfaction with the familiar, excitement, desire to be first, desire to help one's country's fame, courage to attempt are all included here. Admiration follows the adventurers and our hearts go with them. Many an early voyage was an adventure though often possible economic advantages were not far from the adventurer's thoughts. Adventurers are best in empty fields and upon mountain tops for in other walks of life the term adventurer has acquired a less creditable flavour. And the spirit of adventure sometimes becomes redundant, even embarrassing to governments when political fortunes fluctuate. The history of Africa can present examples enough.

Adventure is essentially personal, rarely national. The great pre-1914 Antarctic leaders of all nations were fundamentally adventurers though mellowed by national pride and scientific zeal. In Antarctica adventure came first and it survives today.

It needs perhaps here to be said that more realism is needed than is often displayed in these matters. Adventure, glamour and enthusiasm, even scientific research are splendid attributes in themselves, but they are not sound substitutes for sane political thinking against a background of sufficient knowledge. It may even with fairness be suggested that the *mystique* which has grown from the manner of Scott's death in 1912 during the return of his ill-fated party from the South Pole has itself been not uninfluential in holding the minds of people in the British Commonwealth too long focused upon and fascinated by the glory of the past. So has been hindered the appreciation of reality and the need for appropriate action to sway the future politically—that is to say as a matter of national expediency.

2. The Economic Motive. Secondly comes the economic motive. The economics of whale oil (and before that of seal skins) have played a great part in Antarctic history, though it is now a much decreasing part since pelagic whaling has almost completely replaced shore stations and the International Whaling Commission supervizes the fishery whose limits are all too clearly seen and close at hand. Otherwise economic considerations are almost absent from the Antarctic story. So far no positive signs of economic worth have been sufficient to stimulate enterprise on the southern continent. Whatever mineral wealth Antarctica may hold—and a great deal of nonsense has been written on the subject—it is not yet apparent and exploitation is long likely to be less profitable than in more easily worked fields elsewhere. This is of course in no way an assertion of the absence of mineral wealth in Antarctica. But it should be recognized that some thousands of feet thickness of ice over a large part of the continent do not afford favourable circumstances for exploitation, quite apart from the problems of isolation and the hazards of transport. Yet it needs to be recognized that the chance discovery of metallic gold for example in one of the ice-free areas might alter the entire picture overnight.

Another aspect of the economic motive is the desire to ensure that a rival nation shall not gain control of what might be valuable one day even though its very existence is unknown as yet. Such prizes as the Alaska purchase in 1867 are not absent from the minds of some who view Antarctica today. Yet quite unexpected and unorthodox forms of economic development at an earlier date must not be ruled out.

The Russian Northern Sea Route* may here be mentioned as a reminder that harsh conditions and ice-encumbered seas will not stop the development of transport and trade so long as economic advantages are obvious. That sea route along the northern shores of the Eurasian landmass sees the annual transport in the summer season of shipping now of over a million tons of cargo a year. Standard freighters are largely used, escorted by icebreakers as need be. There is a highly developed weather and ice forecasting service based on aerial reconnaissance, and on the routine observations of over a hundred meteorological and other stations along the route.

3. The Scientific Motive. Research, both fundamental and applied, is a powerful force with many educated people and nations. National scientific research (especially by Britain's 'Discovery Investigations' in the Southern Ocean) fostered the foundation of the International Whaling Commission. And now in the I.G.Y. of 1957-8 (a successor of the International Polar Years of 1882-3 and 1932-3) the concurrent measurement of geophysical phenomena by many scientists of many nations, with especial emphasis on Antarctica, will produce results of immense ultimate use to mankind. The particular mention of weather forecasting for the southern hemisphere, and of improved radio-communications will suffice to exemplify fields where special advantages will accrue at an early date.

Problems of high altitude atmospheric circulation will receive special attention in Antarctica. Results will have significance in relation to suggestions, however unfounded, that particular countries would run unfair risks in the event of uninhabited Antarctica becoming the site for experiments in the realms of nuclear explosions.

The International Geophysical Year affords a nice example of the possibilities of international co-operation when scientists of many nations work together towards near attainable objectives. Yet a reminder is needed perhaps that the scientists, unlike the politicians and the national leaders in the realms of defence, have responsibilities which are conveniently simple. If particular geophysical research does not mature, regret has in general no need to merge into fear. The politicians and military leaders have responsibilities in general of a higher order—though by no means necessarily possessing wisdom of a higher order—and it is only in the realms of nuclear and other national research, that the scientists' responsibilities become truly onerous. Thus the initial scientific inter-

*See Terence Armstrong. *The Northern Sea Route: Soviet Exploitation of the North East Passage*. Scott Polar Research Institute. Special Publication, no. 1. C.U.P., 1952.

national co-operation of the I.G.Y. is enabled to present to the world an air of common sense, common endeavour and fine organization.

4. The Political Motive. This is easier to appreciate than to define, but its strength is great. National prestige and national pride are factors in a greater whole: so is the desire not to be backward while others advance.

However much the observer from another planet might wonder at the curiosities of the Antarctic political scene, he would be viewing a matter of real significance, even drama, despite the naturally uninhabited and ice-bound nature of that continent. Already in 1952 the first shots were fired in anger in Antarctica by Argentines against Britons. The aim fortunately was bad and the shots were not returned*.

Political motives in Antarctica today are concerned with the maintenance, the new establishment, or the upsetting, of claims to territory. For Antarctica has been divided into sectors running from the coast to the pole. These sectors are held by five mutually-recognizing sovereign powers—Australia, New Zealand and the United Kingdom, and France and Norway. The claims to these sectors are based on the three elements required by international law:

a. Priority of discovery, followed within a 'reasonable' time by

b. Formal claim, and

c. The provision of an administration suitable to the needs of the territory.

The actual dates of the formal claims are: United Kingdom, 1908; New Zealand, 1923; France, 1924; Australia, 1933 and Norway, 1939. In fact, the United Kingdom Letters Patent of 1908 constituted only a formal definition and confirmation of claims which had been in existence from very early dates varying between 1775 in South Georgia and 1843 in other areas. There is an unclaimed Pacific sector to which, there can be no doubt, the United States could present a better claim than others.

It may be pointed out, however, that though the sector principle is a useful device, it is in fact improbable that an International Court would find itself able to uphold claims to large areas of totally 'unexplored' territory. But in this connection there is much need for greater understanding and clearer definition of just what is meant by 'explored' and 'unexplored' territory in relation to equally ambiguous terms such as 'mapping', 'aerial photography', 'aerial survey' and so on.

* When mentioning this first warlike incident in Antarctica's history, it is amusing to recall what is asserted to be the true story behind the amicable settlement of the Fashoda incident between the United Kingdom and France in the Sudan in 1898. Kitchener, the British representative, was an exceptionally tall cavalry officer. On entering the low doorway of the Frenchman's tent, Kitchener had to stoop so low that he chanced to split the seat of his trousers on his own spurs. This occurrence happily led to laughter, drinks, and the ice was broken. Fashoda went down to history as a happy and sensible settlement. But spurs are not worn in these days in Antarctica—nor even were they in those days in the past when surprisingly to foreign eyes Britons used ponies in transport across the ice.

Beyond the five mutually-recognizing sovereign powers, there are two open usurpers, Argentina and Chile, and two great powers, the United States of America and the Union of Soviet Socialist Republics, which have made pronouncements about sovereignty in Antarctica. The rest of the nations of the world in general have so far assumed no clear positions relative to Antarctica, or at any rate have not publicized important declarations.

As to the open usurpers, Argentina with some justification and Chile with none, have overlapping claims with the United Kingdom and with each other in the British Falkland Islands Dependencies. The Argentine claim dates from 1925 and has been greatly pressed since 1942, while Chile made no pretensions at all to Antarctic sovereignty until 1940. This dispute has led to repeated United Kingdom offers to go to arbitration, and finally in May 1955 to unilateral application to the Hague Court* when Argentina and Chile had again refused to subject their cases to arbitration.

As to the other powers, the United States has been foremost in insisting that she recognizes no claims, and she makes no formal claims herself. Yet she has scarcely discouraged (except perhaps very recently) her citizens from making claims on her behalf. Some of her recent activities, too, have clearly shown her recognition of the sort of evidence that an international court might like to see in the future, were there to be some form of arbitration. For example the U.S. naval icebreaker '*Glacier*', in her notable Antarctic coastal voyaging in the early months of 1956, deposited flags and records at a number of earlier unvisited points along the shores of the Australian and Norwegian sectors.

Similarly, the Soviet Union has made no formal claims. Indeed the only expedition from Russia which could supply any semblance of legality for claim was Bellingshausen's famous voyage of Antarctic circumnavigation in 1819 to 1821. But the Soviet Union has stated that she will not accept any decisions about a régime for Antarctica taken without her participation.

Meanwhile the mutually-recognizing sovereign powers of course assert that new activities can in no way validate new claims, and that relevance in these matters is attached alone to activities before the dates of their formal claims†.

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* The British submission to the Hague Court was reproduced in full in the *Polar Record*, vol. 8, no. 53, 1956, pp. 125-51. That journal, too, regularly reprints the Notes exchanged between, and the pronouncements made by, the rival nations concerned.

† This is the immediate background to that seemingly curious despatch of Notes which occurs whenever one nation embarks in Antarctica upon activities in the territory of another whose sovereignty is not recognized. Thus the United States, not recognizing New Zealand's sovereignty in the Ross Dependency, seeks no formal permission for the use of that territory of a friendly nation. Yet New Zealand being incapable of preventing (even should she so wish) United States activity in her Antarctic sector must uphold her semblance of sovereignty. Therefore follows the hasty issue of an invitation to the United States to use her Ross Dependency, and an offer to provide the facilities at her command. Neglect of that formal invitation would on the part of New Zealand be tantamount to withdrawal from the claimed position of sovereignty.

Regarded in the light of this background political story, undoubtedly the political and scientific motives for present Antarctic endeavour are by no means fully separable. Thus it is truth and not cynicism to remark that there have been scientists for some years who have appreciated that governments would at this time provide funds for fundamental research in Antarctica though not nationally motivated by science. Likewise there are political people who fully recognize that longer term political ends may be achieved under a scientific cloak, even if, to continue the metaphor, it is a little bit threadbare. Some further consideration of the political position in Antarctica, as a background to future possibilities, will be found in section VI below.

5. The Strategic Motive. Fifthly, comes the strategic motive in Antarctic endeavour. This is a recently-born motive likely to have a long and lusty life before it, albeit that fair assessment is yet difficult.

The Antarctic strategic picture may perhaps be more readily understood with the Arctic scene clearly held in mind. In this as in much else the northern polar regions have provided much experience both physically and in strategic thinking which is directly transferable to the south. The northern picture is a simpler one. There North America and the Soviet Union face each other across an intervening Arctic Ocean direct crossing of which affords the shortest route from either to the heart of the other. In reaction to the fear engendered by this clear geographical fact, the United States has found it necessary to set up its large and very amply equipped strategic air base at Thule in north-west Greenland with an offshoot at Nord in the far north. All United States activity in Greenland falls under agreements made within the last decade with Denmark whose sovereignty in Greenland the United States fully recognizes*. In addition, the United States and Canada have equipped and jointly man chains of meteorological and detection stations running across the far north, with connections and extensions along the Aleutian chain of islands and wherever else seems necessary. The three main lines are the Distant Early Warning Line, the Mid-Canada Line and the Pine Tree Line. It may safely be assumed that the Soviet Union has not been backward in making like arrangements calculated to serve her particular needs as she sees them.

All this activity is based on the assumption that the main potential menace on either side is an aerial one, though there is little doubt that if so directed modern icebreakers could traverse the Arctic basin while modern submarines could cross beneath the ice†.

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* The text of the main agreement is set out in *Polar Record*, vol. 6, no. 43, 1952, pp. 408-12.

† So far the highest reported latitude ever reached by ship is 83° 21′ north (at longitude 53° 11′ east) by the '*Fedor Litke*' in September 1955. See *Polar Record*, vol. 8, no. 55, 1957, p.347. This elderly Russian ice-ship was in fact built in a British yard at Barrow in 1909 and was launched as the '*Earl Grey*'. She is not an icebreaker in the sense of being both over 4,000 tons and having a ratio of horsepower to normal displacement tonnage exceeding one. For a suggested definition of icebreakers and other ships for use in ice reference should be made to the *Polar Record*, vol. 8, no. 52, 1956, pp. 45-7.

The most obvious example of the potential strategic importance of Antarctica concerns Drake Passage between Cape Horn and the South Shetland Islands. Were the Panama Canal to be blocked in time of war—and it would be an obvious objective—much shipping would be forced once again to use the southern route around the Americas. The Strait of Magellan is easily controllable from the land and intricate. Drake Passage is about 700 miles wide, and is the one constriction in the world-encircling Southern Ocean. Its control could become of great importance among warring nations. Among the South Shetland Islands, immediately to the south is Deception Island which may be justly called the capital of the Falkland Islands Dependencies. Deception Island affords the sole near-continental site for any form of Antarctic naval base or other substantial military establishment. It is moderately free of sea ice for much of the year and there are ample areas of flattish ice-free land. Present apparent neglect of the strategic importance of Deception Island should by no means be taken to indicate a doubt as to its reality.

Relevant to such considerations are the voyage of the German cruiser '*Komet*' along the Russian Northern Sea Route—through the North-East Passage—from the Atlantic to the Pacific in 1940*, German attacks on shipping along the Northern Sea Route†, and the activities in the Southern Ocean during World War II which included the sinking of much whaling tonnage and special use of both the Iles de Kerguélen and Deception Island as real or potential hiding places for commerce raiders.

A related topic is that of trans-Antarctic air routes, whether regular or occasional. In the thickly populated northern hemisphere, several great circle routes between important areas and cities pass through very high latitudes. These routes will no doubt progressively become more important. Scandinavian air operators have been the recent pioneers. But, in the southern hemisphere populations are so small and large cities are in such relatively low latitudes, that regular trans-Antarctic civil routes are unlikely to develop for some decades yet. There have been press reports of American remarks about setting up a civil air base in Antarctica in New Zealand's Ross Dependency. But for military use the position may be very different. Intermediate establishments or staging posts on the continent itself may be a necessity, and combined with them there will be need for what we may term strategic meteorological stations.

Arctic experience in these matters is of course immense, more particularly in regard to four points. The first is the establishment and maintenance of the massive air base at Thule where conditions are rather comparable with those in McMurdo Sound. The second is the efficiency and regularity of the United States meteorological flights between, pre-eminently, Alaska and points near the North Pole. These flights have been weekly since the end of World War II and more recently they have been daily. The efficiency of the southern summer flights of 1956-7 between New Zealand and Williams Airbase in McMurdo Sound, Ross Dependency, doubtless owe much to this Arctic experience. Thirdly is the northern experience of a number of nations of establishing and maintaining many isolated meteorological and other stations on land and sea in very high latitudes, some of them established and victualled entirely by air alone. Among these, of particular remark are the Russian stations on drifting floes in the Arctic Ocean, and the United States stations from time to time on the so-called 'ice-islands' likewise freely drifting in the Ocean*. Fourthly requiring special mention is the northern experience, again more especially Russian, of landing heavy four-engined aircraft on wheels on unprepared and unsurveyed floating pack ice or shelf ice or on an ice-cap. This experience is already paying dividends in Antarctica.

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* See *Polar Record,* vol. 5, no. 37-8, 1949, pp. 291-5.

† *Ibid,* vol. 6, no. 46, 1953, pp. 822-6.

Thus it may reasonably be asserted that strategic thinking backed by great resources, which already dominates the Arctic contacts of the two greatest powers, is unlikely to be absent in Antarctica. Even if the application of physical force in or through or from Antarctica appears as yet improbable, any partial denial to a potential enemy or any special experience or facilities, can always appear to be justified.

These then are the chief classes of motive for present Antarctic activity —adventurous, economic, scientific, political and strategic. There may be others.

Now let us take in alphabetical turn the nations participating in Antarctica today and try to assess the motivation of each.

IV. THE NATIONS PARTICIPATING

There are twelve nations at present actively participating in the International Geophysical Year and other activities in sufficiently high southern latitudes for consideration here. They are Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, South Africa, the Soviet Union, the United Kingdom and the United States. With the exception of Belgium, whose interests are purely scientific, it would not be unfair to state that all the rest have Antarctic 'aspirations' or 'interests' whose more precise definition is not needed here. Clarification will come from the consideration of the activities of each in turn, together with an attempted assessment of the motivation of each. In truth of course no one can and often no one should be able to discern the motivation of nations in full. But the discernment of apparent motivation is often easier than understanding of the policy which must be presumed to be based on the motives. In explaining present national activities it has been necessary in general to indicate activities stretching over the last decade and a half. But no attempt is made to recount history earlier than that.

A matter of importance is mentioned with reference to each participating nation, namely whether it is possessed of sufficient ice shipping for national needs or whether forced through national inadequacy to charter and so to undertake national efforts under foreign flags. This matter understandably perhaps is all too apt to be influential in the gradual formation of world opinion in matters Antarctic however ignorant of international law that opinion may be.

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* See *Polar Record*, vol. 8, no. 55, 1957, pp. 850-1.

Argentina. There has been a long interest in the South Orkney Islands where the Argentine government has continuously maintained a meteorological station handed over to them by the Scottish National Antarctic Expendition in 1904. Between 1925 and 1937 Argentina formulated on paper pretensions to parts of Antarctica. But it was in the dark days of World War II, in 1942, that Argentina first formally attempted to take possession of a sector, which includes much of the British Falkland Islands Dependencies, by depositing a notice of claim at Deception Island. Since that date she has sought to strengthen her claim by establishing a number of stations. Eight stations are currently occupied, and it is said that they will take part in the I.G.Y. programme. It is quite plain that the motive behind this activity is political. During General Perón's régime Argentina had seen the possibilities of expanding her national territories at the expense of Britain. To gain this objective she has spared no effort or resource.

Argentina's activity has been supported entirely by vessels flying her own flag. For the easier, west coast of Graham Land unstrengthened vessels have been used. But realistic appreciation and foresight were displayed in the building in Bremerhaven in Germany of the modern ice-breaker '*General San Martin*' of 4,500 tons normal displacement and 6,600 horsepower. She was completed in 1954 and early in 1955 established a station on the southern shore of the Weddell Sea, being the first successfully established by any nation in that region. She demonstrated her usefulness anew early in 1956 when she revictualled this new Belgrano station without difficulty at a time (in fact even in advance of the time) when '*Theron*' a modern 'sealer' flying the Canadian flag and under British charter was beset for a month in the Weddell Sea ice until an awkwardly late date in that season.

Australia. As the sovereign power possessing the largest sector, formal claim to which was made in 1933, Australia has been active in Antarctica for some years. After World War II she soon set up permanent meteorological stations on her sub-Antarctic islands, Macquarie and Heard Islands, in the Southern Ocean, the latter being abandoned however in 1954. Australia built her first permanent continental base, Mawson (in Mac-Robertson Land in lat. 67° 36′ S., long. 62° 52′ E.) in 1954. To that she added, early in 1957 a second station, Davis, in the Vestfold Hills (in about lat. 69° S., 70° E). For Antarctic continental work, Australia relies on small chartered Scandinavian vessels.

Australia's motives are primarily those of a sovereign power providing an administration suitable to the needs of the territory, and wishing to discover what potential resources exist there. To that it has been easy and most suitable to add the natural reflection of the desire of Australian scientists to be well represented in the researches of the I.G.Y. by a continuation of the extensive programme of research which had already been in operation for some years.

Belgium. Belgian interest in Antarctica has not been great, but she sponsored one notable expedition in 1897-9 led by Baron de Gerlache, that being the first scientific expedition ever to winter in Antarctic waters. As a contribution to the I.G.Y. Belgium proposed to establish a coastal station in the vicinity of longitude 20°E. This was to be a purely scientific expedition, and the leading spirit in promoting it was the son of the earlier explorer. A chartered Scandinavian ship was to be used. Establishment in the 1957-8 season is expected.

Chile. The first serious interest taken by Chile in Antarctica was in 1940 when she asserted a claim to a sector which includes much of the British Falkland Islands Dependencies and overlaps too with Argentine claims. Chile has similarly built and manned huts in British territory. Four of these are designated as taking part in I.G.Y. observations. Again as with Argentina politics are the driving force behind this activity. Chile has consistently relied upon her own unstrengthened vessels for her Antarctic activities. But she now has building in Germany a substantial ice-strengthened vessel not far below the icebreaker class.

France. France possesses a modest sector of the continent, Terre Adélie, which she claimed in 1924, as well as the sub-Antarctic Îles de Kerguélen, discovered and taken possession of in 1772. There has been considerable activity in both territories since the second world war. On the continent *Expeditions Polaires Françaises*, a private organization drawing largely on government funds, occupied a coastal station from 1950 to 1953. The French I.G.Y. Committee established a station close by in January 1956. A further station 300 miles inland has been set up near the South Magnetic Pole early in 1957. The existing station at Port-aux-Français on the Îles de Kerguélen also carries out an I.G.Y. programme.

The French Navy in 1948 acquired a ship which was used to transport the first parties to the south, but she proved unsuitable and Scandinavian strengthened vessels of the sealer type have latterly been chartered.

After the early post-war French psychological resurgence when adventurous enthusiasm played an important part the scientific motive has been uppermost in French minds and high quality scientific work has been done, while at the same time the responsibilities of a sovereign power have not been forgotten.

Japan. The only earlier Japanese expedition to Antarctica was that of 1911-12 to the eastern edge of the Ross Shelf Ice. Now a Japanese party has set up an I.G.Y. station on Prins Harald Kyst (in Norwegian territory in lat. 70° S. and long. 39°E.) sailing in a Japanese ship strengthened for ice. Japan by her peace treaty at the end of World War II renounced any Antarctic territorial claims. So her motive must be supposed to be scientific with an admixture of national pride and of economic interest concerned with her remarkably increasing whaling activities*.

* A particular point is here worth reference in the field of whaling economics. To the western whaling concerns the whales provide high value oil chiefly from the blubber, together with relatively low value meat and bone meals. On the other hand, the Japanese regularly refrigerate an important proportion of whales' meat for human consumption on the home market. Indeed it was said

New Zealand. The Ross Dependency has been New Zealand territory since the initial claim in 1923*, but her first direct Antarctic activity was delayed until the southern summer of 1956-7. Scott Base in McMurdo Sound now houses jointly the New Zealand Ross Sea party of the British Commonwealth Trans-Antarctic Expedition and a national I.G.Y. group. A further New Zealand party, jointly with a group from the United States, is established as another I.G.Y. station at the north-western corner of the Ross Sea at Cape Hallett. Additionally the permanent meteorological station at Campbell Island has adapted its research programme to meet I.G.Y. needs.

The Scott Base party was transported in the ice-strengthened small research ship '*Endeavour*' under the New Zealand flag, that vessel having been purchased from the British Government in 1955 after a decade's service with the Falkland Islands Dependencies Survey. The joint N.Z.-U.S.A. station depends upon United States transport.

New Zealand's motives in Antarctica may be characterized as a desire to make up for lost time in asserting her sovereignty to the Ross Dependency, together with sound scientific zeal, but with adventure as an initiator and catalyst.

Norway. It was the Norwegian, Roald Amundsen, who first reached the South Pole in 1911. Norway is also the country with the greatest Antarctic whaling interest, and this has long led to the exploration of the continental coast-line and the sub-Antarctic islands. Dronning Maud Land (the Norwegian sector) was claimed formally by the Norwegian crown in 1939.

that before the second world war over half the red meat consumed in Japan was whale meat. Thus in the Japanese whaling economy there is an additional high value product. This fact, together with relatively lower labour costs, places the Japanese whaling industry at a considerable advantage compared with the western nations, among whom whale meat even under dire stress of war is foolishly regarded as almost completely unacceptable for table use. The Japanese are party to the International Whaling Convention and follow the regulations issued by its permanent Commission.

*The substance of this paper having been prepared for a New Zealand audience, it is appropriate to mention in detail an opinion from the New Zealand writer E. K. Braybrooke writing on 'The Future of Antarctica' (*Landfall*, vol. 10, 1956, pp. 330-9). His is an interesting statement, in general perhaps critical rather than constructive, but he brings out what may be a highly relevant and important point. Braybrooke states (p. 331):

"A prime example of this sloppiness of thought—or perhaps of the consequences it may bring in its train—is the confusion over New Zealand's title to the Ross Dependency. The popular belief is, no doubt, that the Dependency is New Zealand territory. Strictly speaking, the Dependency is a British settlement, over which Great Britain claims sovereignty, but which is administered on her behalf by New Zealand. The power of administration thus exercised is, however, insecurely founded . . ."

Braybrooke proceeds to describe certain verbal inadequacies in the relevant Acts, and concludes " . . . to the lawyer's eye the 'chain of title' is sadly defective"—though I believe there can be no doubt as to the intention of the Acts. Braybrooke seems to have an important point, and proceeds to urge that New Zealand would do well to be forward in seeking a general settlement in Antarctica under the auspices of the United Nations Organization.

Norway had earlier claimed Bouvetoya in 1928 and Peter I Oy in 1931. The I.G.Y. station which Norway has now established in her sector (at 70° S. lat. and close to the meridian of Greenwich) is close to the site occupied by the joint Norwegian-British-Swedish Antarctic Expedition of 1949-52. With her tradition of sealing in northern waters the country is fortunate in possessing ample small ships strengthened for ice which can be used to transport her own party, and for charter to countries lacking suitable vessels of their own. Though it may here be pointed out that it is Denmark which is foremost in charter arrangements and possesses good ice-strengthened modern vessels.

In the country of Nansen and Amundsen, the herioc days of polar exploration are not forgotten. But now Norway has sunk her past desire for adventure beneath the need to exercise sovereignty with a strong admixture of both economic and scientific motives too.

South Africa. South African interest has until recently been limited to sub-Antarctic islands in her vicinity. Two, Prince Edward Island and Marion Island, are under her sovereignty (having been transferred from the United Kingdom in 1948) and the weather station at the latter carries out an I.G.Y. programme. South Africa additionally pursues similar programmes at Tristan da Cunha and Gough Island which are British possessions in much lower latitudes in the South Atlantic Ocean. She has had a weather station at Tristan for some years, and at Gough took over in May 1956 from a small pioneer British party which had been investigating the island for the previous six months.

Additionally there were plans for a possible joint South African-Russian-Norwegian station to be set up on the Norwegian Bouvetoya. But this project has proved abortive and from the point of view of establishment and victualling would have presented real physical difficulties.

South Africa's interest in these islands is primarily as most important links in her network of weather stations. For the same reason she has a special interest in Antarctic continental weather stations and further cannot afford to ignore the strategic aspects.

Soviet Union. With the exception of Bellingshausen's remarkable circumnavigation of the Antarctic continent in 1819-21, there was no Russian interest in the Antarctic until after the second world war. Soviet whaling in the Southern Ocean has been carried on since 1946, but only now with the I.G.Y. has a Soviet expedition been established on the mainland. Besides the main coastal station, Mirny, (at lat. 66° 32′ S. and long. 92° 57′ E.) in Queen Mary Land in the Australian sector established early in 1956, two other stations were soon operating and now apparently there are four. The original plan was to include establishments at the South Geomagnetic Pole and the Pole of Relative Innaccessibility, but it did not prove possible to set up either of these in the 1956-7 season. Three of the planned stations were to be official I.G.Y. stations, the remainder being support stations and temporary scientific stations. All Russian stations are in Australian territory*.

* The most recent information about Russian and other national activities is summarized in *Polar Record*, vol. 8, no. 57, 1957, pp. 535-41.

The Russians drawing on their enormous specialist staff and equipment from the Arctic are well able to carry through a difficult programme successfully. Using the two large cargo ships the '*Ob*' and '*Lena*' so stoutly strengthened and powered as to be almost in the icebreaker class, they have taken south thousands of tons of stores and some hundreds of men in each of the last two southern summers. Their total wintering party at all stations now numbers between one and two hundred men. The Russians had planned to have long range aircraft flying in from Australia but this plan has yet to mature. Additionally the Russians have a number of aircraft on the continent which will no doubt carry out an extensive flying programme. Russia is of course possessed of a substantial fleet of icebreakers.

The expressed Soviet motive is the furtherance of science and without doubt a detailed scientific programme will be carried out efficiently. Some first class scientists are working on the continent, and the whole venture is mounted under the auspices of the Academy of Sciences.

Politically Russia has made no territorial claims, but a statement was issued in 1950 to the effect that Russia will not recognize as legal any decisions taken without her participation. Clearly there are political aims with which strategic aims must be certainly intermixed. In Antarctica Russia might have much to gain but she has nothing tangible to lose. Thus seen the scientific vigour of the present activity can appear no longer as the only motive. Further light on Russian motivation is implicit in the remarks which are made below with reference to the tremendous United States effort in Antarctica. Cold warfare must now be regarded as extending into Antarctica. The world's topographical boundaries in a sense have become almost negligible in the face of modern transport.

United Kingdom. The first formal claim to Antarctic territory ever made was by the United Kingdom in 1908, including what is now known as the Falkland Islands Dependencies. The preponderance of British effort in Antarctica up to 1920 was remarkable. Since 1943 there has been continuous occupation of an increasing number of points within the Dependencies under the aegis of the Falkland Islands Dependencies Survey, which is under the general control of the Governor of the Falkland Islands in Port Stanley.

Ten such stations are now being permanently occupied for political reasons, and include Deception Island whose special importance has already been noted. Much detailed survey and some good scientific work* has regularly been done from these stations and they can (being routine meteorological stations) conveniently contribute to routine recording during the I.G.Y. The victualling of these stations through the years has been mainly but not quite exclusively performed by small vessels flying the British flag, among which the old '*John Biscoe*' (now '*Endeavour*' under the New Zealand flag) played a predominant part. F.I.D.S. activities are now furthered with the aid of the new '*John Biscoe*' completed in 1956 (1,584 tons displacement and 1,400 shaft horsepower) and the '*Shackleton*' (formerly the Norwegian '*Arendal*').

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* This work is regularly published in the series of Falkland Islands Dependencies Scientific Reports issued by the Colonial Office.

In the southern summers of 1955-6 and 1956-7 additionally there has been in operation a formal aerial photographic survey (the first in Antarctica) of the most important parts of the Falkland Islands Dependencies. This work is being carried out by one of the major British air survey companies under contract with the Colonial Office. The motivation here may be cited as a mixture of the scientific, the economic and the political. The ship '*Sven Oluf*' chartered for this work was flying the Danish flag.

Motivated purely by science is the Royal Society Antarctic Expedition which set up its Halley Bay station in Coats Land early in 1956. The main party arrived early in 1957 and the station is now at work with a first class scientific team. The Royal Society main party shared space in another Danish vessel ('*Magga Dan*') with the main party of the British Commonwealth Trans-Antarctic Expedition. This latter expedition's advance party had set up its Shackleton Base at the southern fringe of the Weddell Sea late in the southern summer of 1955-6, after the ship '*Theron*' (under the Canadian flag) had been beset for a month. Shackleton is about twenty miles from the Argentine Belgrano Base set up a year earlier and already referred to. Shackleton Base in March 1957 sent a small offshoot to pass the 1957 southern winter 300 miles further south into the continent. Both stations take part in certain I.G.Y. observations. The main object of the British Commonwealth Trans-Antarctic Expedition—in its two halves from Ross and Weddell Seas—is the first surface crossing of the continent by vehicles and dogs. The motivation here is primarily adventurous; and it may truly be said that of all the many expeditions in Antarctica today this is the only one so motivated and the only one largely supported by non-governmental funds.

United States. The United States has since the early nineteen-twenties a history of active interest in Antarctica notably stimulated and led by Admiral Byrd. Politically the position of the United States has been that she neither claims territory for herself nor recognizes the claims of others. Since the second world war she has mounted, in Arctic and Antarctic alike, large and splendidly equipped expeditions or military exercises, such as Operation 'High Jump' in 1946-7 in the Antarctic. But all these past ventures are eclipsed in size and importance by Operation 'Deepfreeze', the present United States effort in connection with the International Geophysical Year.

In the 1955-6 southern summer a future I.G.Y. station was established in New Zealand territory at Little America V (on the Ross Shelf Ice close to the sites of four earlier expeditions under Admiral Byrd), and an operation support base, Williams Airbase, on Ross Island, close to Scott's home in 1901-4. In the 1956-7 southern summer further I.G.Y. and general support bases have been set up. Since January 1957 the South Pole itself has been occupied by a dozen men with facilities of at least a semi-permanent nature and their own mechanical transport all delivered by air. Largely by tractor train a considerable establishment has been set up in

Marie Byrd Land (at about 80° S. and 120° W). Two further establishments are in being, one on the Knox Coast in Australian territory (at about 68° S. and 100° E.) and one at the southern fringe of the Weddell Sea in British territory close to the British and Argentine stations already mentioned. In addition there is the joint I.G.Y. station with New Zealand at the north-west corner of the Ross Sea at Cape Hallett.

This very large programme has called for tremendous logistic support, which the United States is well able to supply. The fleet of ships has included several icebreakers of which '*Glacier*' (completed in 1955, of 8,300 tons displacement and 21,000 shaft horsepower) is the most powerful afloat*. Additionally there have been aircraft flying, like a hard-working taxi service, between New Zealand and McMurdo Sound. Considerable technical difficulties have been overcome in keeping the ice in fit condition for wheel landing by these heavy machines. Guard or safety ships have been stationed at intermediate points in the Southern Ocean during the flying season.

Further aircraft have been brought to the continent by ship. Very extensive photographic flights have already been made and more are expected. Already by March 1956 there had been at least one aerial crossing of the continent from the Ross to the Weddell Sea. Two small petrol-filled depot tankers were deliberately frozen in at the end of the 1955-6 open season in McMurdo Sound, and further fuel was supplied in the 1956-7 season through ten miles of flexible piping from ships at the ice edge. The scale of activity is quite enormous and far transcends anything ever done in Antarctica before or by any other country today. The establishment of the northern strategic air base at Thule in north-west Greenland some five years earlier affords a most interesting technical comparison.

It behoves the materially most powerful country in the world to play the leading part on an occasion such as the International Geophysical Year. But that statement is an inadequate analysis of present American motives in which strategy, science and politics are indubitably far ahead of minor economic and non-existent adventurous stimuli. United States Antarctic activity falls under an *ad hoc* body directly answerable to the Operations Co-ordination Board and with Presidential authority to call upon the full resources of the Service Departments. Though public statements are imprecise, long term occupation of Antarctica is clearly envisaged by the United States. That would mean, apart from Marie Byrd Land in the Pacific and unclaimed sector, long term occupation of the territory of other friendly nations whose sovereignty is not recognized.

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* Though '*Glacier*' is the most powerful icebreaker so far afloat, the United States is believed to be building another larger. At the same time the Russians have two yet unnamed icebreakers, of 12,840 tons and 22,000 horsepower, already under construction by Wärtsilä-Koncernen AB of Helsingfors in Finland. There is also mention of an atomic-power icebreaker in the Russian sixth five-year plan for 1956-60. Her building has now begun in Leningrad, and she is to be of 16,000 tons and 44,000 horsepower.

One cannot but conclude that an element of understandable apprehension enters into United States motivation in Antarctica. It is the apprehension lest any other power should physically come to dominate this last continent whose potentialities for good or ill are yet unclear. In the world as it is today this motivation is quite expectable. And this United States manifestation of what is nationally expedient may well be acceptable too even to the materially less-endowed nations whose formal claims to Antarctic territory are of long standing. Such motivation on the part of the United States in no way hinders, indeed perhaps it further fosters, great personal friendliness and helpfulness to those of other nations in Antarctica today. New Zealand has particular reason for gratefulness at the material and personal levels. The Americans commit tremendous resources to Antarctic endeavour, resources which only the Russians are capable of matching, though in fact so far equal effort has not been visible.

V. INTERIM CONCLUSION

Thus, an attempt has been made to describe the Antarctic picture today and over the last fifteen years. This has been done against a background of the motives which are judged to stimulate the nations, both in scientific friendly rivalry and in political, indeed strategic, cold warfare. The prospect is one of great activity and immense interest. The last continent is ripe for development; its potentialities are not yet clear; modern techniques of transport and living have overcome all physical barriers if material resources are committed in sufficient quantity; and only two nations have in fact resources enough.

Political stability in Antarctica in the next few years is certainly improbable. The post-war realignment of the nations in terms of modern power and resources is now in process of extending to Antarctica. Great changes in the early future are expectable in many fields of Antarctic affairs and activity. Now is the time for realism and reappraisal by the sovereign powers of Antarctica.

VI. REAPPRAISAL

Since the present cannot by any manner of means be regarded as a stable stage in Antarctic history, there can be no doubt whatever of the intrinsic desirability of detailed and early informed consultation between the three British Commonwealth nations concerned. That is an obvious first and continuing essential feature. There is great need to have full mutual explanation of the possibilities, and a complete view of the difficulties which are inherent in any plans which may emerge to relieve a complex situation.

So far, all too much nonsense has been talked about Antarctica, even by those who should from their official positions have known better.

Much of the talk has seemingly been in the realms of fantasy, emerging from happy ignorance and part knowledge. In addition there has been the problem set by the idealistic sentiments of persons in the British Commonwealth who have wrongly supposed that other nations shared their own special approach to the Antarctic scene.

Happy ignorance and part knowledge have provided a real difficulty which should not escape attention, even if it was partly inevitable. Lesser problems are all too often neglected by Governments; and in the present world setting Antarctic problems and rivalries so far are indeed among the lesser. Responsible senior officials quite understandably pay the lesser problems too little attention in the face of major competing interests, until all too often the lesser problem becomes with unexpected suddenness a major one. At that stage, inadequate personal knowledge and lack of advance thinking among the often overworked senior officials frequently leads to clumsiness and hasty and unsatisfactory arrangements. These could easily have been avoided by superior knowledge, perspective and thought at a much earlier stage. Underlining this frequent deficiency at the policy level is a parallel deficiency at the administrative level, where changing staff results in less than adequate informed official advice being available to responsible ministers. A future historian might find a revealing example in the British juggling with their Antarctic responsibilities and files between the various Colonial Office departments since the end of World War II*.

At this stage it is appropriate to remember that the background to the present Antarctic problem has four special aspects, partly concrete and partly abstract. These are: first, the physical facts of Antarctic geography and transport; secondly, the international legal position as it might appear to an international court of arbitration; thirdly, the facts of power among the nations, today and not yesterday; and fourthly, the distribution, among the nations, of the will to achieve a political end.

Realism further requires the recognition that however stoutly, rightly and righteously the mutually-recognizing sovereign powers may endeavour to uphold their national claims and positions in Antarctica based on history and legal principle, much of the world in fact regards Antarctica in totally different terms. Most of the world regards Antarctica, it may be suggested, as the last continent ripe for 'regularization' among the nations, as an uninhabited territory, and therefore perhaps as an opportunity for experiment in international management.

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* For many years British Antarctic interests, predominantly the administration of the Falkland Islands Dependencies, were managed by the Mediterranean Department of the Colonial Office. Antarctic interests were not successful competitors for the attention of hard-working senior officials with the successive crises first of Palestine, and later of Cyprus, with Malta thrown in for a makeweight. In the late forties the Falkland Islands and the Dependencies were moved to the West African Department of the Colonial Office, and in the early fifties to the West Indian Department. The essentially physical and maritime operations required to administer an uninhabited frigid territory may one day be regarded by historians as curiously placed within a government department whose main concern and careful thinking centred around the well-being and constitutional advance of tropical peoples with accelerating nationalistic emotions. The historians too may draw attention to the continued retention of the Dependencies within the Colonial Office orbit when the problem had throughout been a political one involving foreign powers.

Further, when approaching the Antarctic problem there is an unfortunate but widespread tendency for world opinion to judge these Antarctic claims and rivalries—quite wrongly it may be—not in terms of international law and old established claims and customs, but more in terms of present activities. And present activities, especially by the Americans and the Russians, are highly spectacular. It is true that there is now more British Commonwealth activity than ever before, but there is so much more activity by others that the Commonwealth share of the total becomes at this time relatively less.

The passage of time is *not* now in favour of the five mutually-recognizing sovereign powers. The total activities of others exceed their own and there are open usurpers and others with ambitions too. Whatever the theoretical strength of the five in international law—again being realistic—there is a very real possibility, if not expectation, that the legalistic basis will in these days prove quite inadequate. One cannot but recognize that territorial and other adjustments are not always made according to the precepts of international law. Power, ill-informed world opinion and the intransigence of individual statesmen or demagogues all too often now play an undue part in world adjustments.

If one can call it so, the single advantage of the open Argentine and Chilean claims in Antarctica has been that the United Kingdom has been led to proclaim to the world through copies of her unilateral submission to the Hague Court in May 1955 the precise basis for her claim with a list of historical facts*. The other Antarctic sovereign powers so far have not published the precise details upon which their claims would be based were there to be a judgment by the Hague Court.

In many affairs of men, whatever the 'natural justice' of the position, conservation by the 'haves' is nearly always more difficult than usurpation by the 'have-nots'. More particularly has this so far been true as between Argentina and the United Kingdom in the Falkland Islands Dependencies, where the use of force seems to have been deemed unsuitable. In this instance there are no useful half-measures between diplomatic protest and the use of force. International law without sanctions is unhelpful.

Thus the Falkland Islands Dependencies present a perfect illustration of the weakness of the international legal system without compulsory judicial settlement. The United Kingdom cannot obtain an authoritative decision on her legal rights, and yet without such a decision the United Kingdom seems unwilling to remove the Argentine and Chilean parties by force. The declared policy is to seek a solution by friendly discussion, but meanwhile the United Kingdom position appears to the world to get relatively weaker while that of the two usurpers appears to get relatively stronger. To them their proximity and lack of other overseas responsibilities is especially convenient. These points in connection with the Falkland Islands Dependencies have been stressed because there the facts and issues are clearest, the legal title strongest of all and the attempted usurpation is quite open.

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* The text of this unilateral application to the Hague Court is reproduced in full in the *Polar Record*, vol. 8, no. 53, 1956, pp. 125-51. It is worthy of remembrance that the long standing dispute between Denmark and Norway over the sovereignty of East Greenland was solved by a Hague Court arbitration in 1933.

The whole problem for the five mutually-recognizing sovereign powers in Antarctica is far from being helped by their comparative grave weakness in shipping and transport along the shores of their own Antarctic territories. Australia and France carry out all their Antarctic continental activities with the aid of chartered foreign vessels, while the United Kingdom, New Zealand and Norway, though a little better off, are still far too weak. Not one of the five sovereign powers in Antarctica has the full manoeuvrability and appearance of power only to be given by the possession of a genuine icebreaker*. On the other hand Russia, the United States and Argentina have admirable such vessels, and even Chile has building a ship superior to anything possessed or yet being built by the five. Our grandfathers must turn in their graves at this astonishing change in maritime power and forethought and at the depths to which the British Commonwealth has sunk, so that great exploratory ventures into British Antarctic territory must set out in chartered foreign vessels flying foreign flags, because the whole Commonwealth has no adequate shipping available.

The world, it becomes evident, observes activities and the appearance of power and in its limited perspective and ignorance draws its own conclusions even if contrary to international law. At the same time, some British Commonwealth eyes all too often seem out of focus in not facing the facts. For example, when American aircraft fly the Southern Ocean regularly between New Zealand and New Zealand's Ross Dependency; when on occasion they fly right across the continent to the Weddell Sea; and when they establish at the South Pole itself a fully equipped meteorological station complete with its own mechanical transport delivered by air, the foreigners—the uncommitted nations—take note. They make comparison with the amount (greater though it is than ever before) and type of activity shown by the five sovereign powers, and the scale of shipping and aircraft available in support. These foreign nations in fact find difficulty in remembering, for example, that the British claim to the Ross Dependency dates back to Sir James Clark Ross who by priority of discovery in 1841 provided the first step in the establishment of New Zealand's present sovereignty.

So grows the overriding requirement of realism, perspective, co-operation and indeed international initiative on the part of the three British Commonwealth Antarctic powers, to say nothing in detail here of France and Norway. There is need to recognize that there are powerful forces and large numbers of thinking people who recognize that in the long run there will have to be a gradual process in the world of diminishing sovereign rights. The process has already obviously begun, for example, in some of the recent European organizations. A continuance of the process is a necessity for the world's good, and those same forces and people feel that Antarctica offers some kind of opportunity for experiment. The argument is fair even if its protagonists are not always personally well-informed. Antarctica is uninhabited, its economic advantages are probably not close at hand, and the scientific data to be obtained from it are mostly in the realms of universal importance.

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* *Polar Record*, vol. 8, no. 52, 1956, pp. 45-7 provides a convenient Classification of Ships for Use in Ice together with a table showing Recent Icebreaker Construction.

Yet it needs further to be recognized that no real precedents exist for arrangements over a land lacking all indigenous inhabitants; and that certainly the United Nations Organization of its own will will not *ab initio* produce a solution or improved situation. It must be given a wise lead. It would seem evident that there is advantage and good sense in that lead coming from the five powers claiming sovereignty. Then possibly 'by idealism out of ignorance' will come something worthy, generally acceptable and lasting.

It must surely be concluded that the argument for continuing detailed British Commonwealth discussion on Antarctica is strong. Only thus can a Commonwealth policy emerge which may come to have more advantages than the reverse. When the passage of time may seem to give advantage to the rival or adversary, then it is often nationally expedient to seize the initiative. When a coat must be cut according to the cloth—and the cloth is a little too skimpy perhaps—then perhaps is the time to gain what kudos may be available by initiating a new fashion. Whether in the Antarctic scene the new fashion must or should be connected with the United Nations Organization is a matter which would emerge from the joint British Commonwealth deliberations.

In all these considerations, it needs to be recognized that in the British Commonwealth nations concerned there are all too widespread emotional glosses which afflict Antarctic enthusiasts (and many others too with less knowledge) which serve but to complicate a situation already difficult enough. There is aptness in quoting from Dr. C. Wilfred Jenks*. This author is eminent among those who have written about Antarctic affairs in recent years for his breadth of vision, good sense and accuracy. He states:

Many of the current reactions to this proposal (i.e. the idea of internationalization†) appear to be primarily emotional in character. Those who are concerned to defend existing sovereign rights and claims instinctively resist proposals for internationalization, frequently with scant regard for the extent to which those rights and claims can be permanently maintained in a world in which a new balance of political forces is slowly emerging. Those who are concerned to extend the scope for international action instinctively champion proposals for internationalization, frequently with slight examination of the nature of the practical problems involved and the manner in which they can be resolved. It is submitted that the time has now come for a new approach, for a realistic appraisal of the extent to which existing rights and claims afford a basis for an Antarctic settlement which will command the measure of continued assent necessary to ensure its stability, combined with an attempt to think through constructively the practical problems involved in devising an appropriate international régime based on existing conditions in Antarctica and probable developments there*.

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* 'An International régime for Antarctica.' *International Affairs*, vol. 32, 1956, pp. 414-26.

† Whatever may be the meaning, and indeed the differing meanings, of the term 'internationalization' in the Antarctic context, the term has gained currency and cannot now be submerged again. It is known that India has had passing thoughts as to the wisdom of opening the matter with the United Nations Organization. Therefore—and this is the main point—it greatly behoves those who possess sovereign rights and claims, and therefore have most to lose, to be very forward in their thinking and in joint consultation *now*. At the same time it needs to be recognized that the concept of 'sovereignty' itself is undergoing rather rapid evolution.

In these matters we would be wise to turn back our thoughts to what happened in the case of Africa. Here are the words again of Jenks, the international lawyer.

> . . . we can usefully remember that the international arrangements which played so important a part in the peaceful development of Africa were the outcome of negotiations based on a realistic appraisal of contending political forces and of the problems and needs of the territories concerned; while political idealism was an important factor in securing the support necessary to make them effective, they were not an intellectual abstraction forced upon either Africa or the Powers concerned but a reasonable adjustment of the conflicting interests involved. It is important that the problem of an international régime for Antarctica should be approached in the same spirit*.

In this instance of course Jenks uses the word 'international' for the moment as no more than indicating international acceptance of whatever régime might be worked out for Antarctica as a whole.

VII. FUTURE POSSIBILITIES

The present territorial and political arrangements in Antarctica having failed to achieve either evident stability or truly widespread acceptance among the nations, what in fact would be the main *theoretical* forms of alternative régimes for Antarctica, and by what means might one of them be reached? To achieve any general acceptance a proposal or plan or *fait accompli* would have to appear to the present mutually-recognizing sovereign powers to possess less disadvantages than a continuation of the present unsatisfactory position, and at the same time to present to the uncommitted nations (or important ones among them) sufficient advantages and incentives, whether real or theoretical.

It needs to be fully recognized that it would be quite in order and according to precedent for the five powers to initiate or to enter into any enquiries or negotiations on the understanding that they *reserve* their positions and the *status quo*, pending the finding of a more widely acceptable arrangement.

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* *Op. cit.*, p. 415.

The possibilities now to be outlined are not necessarily mutually exclusive, though they are definitely separable for convenience of discussion. The following paragraphs owe much to Jenks's paper in *International Affairs* already quoted.

The geographical scope of any Antarctic régime would need further consideration with regard to the islands in the adjacent seas. But if there were good will enough to approach the larger problem, the islands should not pose any great difficulties. In this matter it is really all land south of latitude 60° S. which might be brought under consideration.

1. Recognition of Existing Claims. The first possibility would be the development of a much wider if not world-wide recognition of the present five sovereignties. This process could be greatly helped if the United States, which would seem undoubtedly to have the first right on grounds of priority of discovery, were now to lay formal claim to the remaining unclaimed Pacific sector. That done, further territorial adjustments to mutual advantage might well take place. Any such arrangements would be on an *ad hoc* basis between interested participants, and would not be the immediate concern of the United Nations Organization with its pressure groups of delegations not directly interested nor scarcely knowledgeable. As Jenks puts it—

> One such possibility would be a partition of Antarctica based on existing rights and claims coupled with conventional arrangements governing facilities and resources similar to the 1920 Treaty concerning the Archipelago of Spitzbergen (Svalbard) and analogous in general character to, though necessarily differing radically in detailed content from, the Congo Basin Treaties*.

In view of certain ill-informed press comment on these matters, a reminder is perhaps not out of place that for one nation to take over territory from another necessarily implies a recognition of valid ownership. This aspect of the Antarctic relationship of New Zealand and the United States is most relevant.

If an approach to the Antarctic problem along these lines were without too great delay to lead to a sufficiency of agreement between the genuinely interested nations, there can be little doubt that many other nations might soon find themselves able to give recognition to the arrangements so reached. Yet, some will ask, which are the 'genuinely interested' nations?

2. Sale of Antarctic Territory. The possibility of direct sale of Antarctic territory must not be ruled out as an aspect of achieving agreement along the lines just outlined (or indeed along any other lines). There is always the possibility of a financial inducement from one nation to another to enable a relatively penurious government in either money or resources possessing minor Antarctic interests to shed its responsibilities to seeming advantage. The transfer of sovereignty by sale is not fanciful, and perhaps not even anachronistic. Remember that Alaska (together with the Aleutian Islands, the Pribilof Islands and others) passed from Russia to the United States of America by direct sale in 1867 after Great Britain had refused the first offer. Likewise having disposed to Britain in the middle of the last century of her possessions in India and Africa, Denmark sold her residual Virgin Islands in the West Indies to the United States so recently as 1917.

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* *Ibid.*, p. 417.

Since purchase normally indicates recognition of a valid title to ownership, in these days in Antarctica a willing and opportunist purchaser might well find itself in a position to recognize a title whose validity had previously seemed insufficient. Indeed public recognition might be given with the express object of early purchase.

Such possible transfers of sovereignty by purchase in Antarctica would not even offend in terms of human allegiance, Antarctica being conveniently uninhabited. Nor would direct purchase necessarily or directly concern the United Nations Organization. Whether such seemingly attractive 'shopping' would be politically possible is quite another matter.

3. Condominium. Condominium as a form of compromise between rival claims and interests has a variety of historical precedents from the Anglo-Egyptian Sudan to Tangier. Condominia have often proved no more than bitter experiences but the absence of inhabitants in Antarctica could perhaps be regarded as a happy augury.

Any arrangements for Antarctica using condominium as a compromise might be reached directly by interested powers. Further, any condominium might be organized to cover the whole of Antarctica or a particular part of that continent and its adjacent islands.

Condominium could be regarded as a permanent solution. Or it might be agreed as a temporary measure for a specified term of years pending a decrease of rivalries, a clarification of Antarctic potentialities or an approach towards world government.

The introduction of a technical consortium, of interested and competent powers in recent years into the Persian oil fields might conceivably provide a useful pointer in Antarctica. Some separation of technical needs and services in Antarctica from ideas of sovereignty in classical form would perhaps not be impossible.

Jenks's views on condominium in Antarctica may be illustrated by quotation:

> . . . to vest responsibility for Antarctica in a consortium of the interested powers exercising a condominium and operating through arrangements analogous to those used hitherto for the administration of the international zone of Tangier or of the former International Settlement of Shanghai; the United States proposals of August 1948 were based on this principle. More radical thinkers appear to contemplate the whole Antarctic continent being regarded as a trust territory subject to the direct administration of the United Nations. The problems involved in establishing a system of government and a legal régime for an area administered directly

by the United Nations, though complex and difficult, are by no means insoluble*.

4. Trust Territories. Another possibility or mode of development would be 'partition into Trust territories each administered by a member of the United Nations responsible as administering authority to the General Assembly through the Trusteeship Council or to the Security Council'*.

Whether U.N.O.'s Charter has power or scope enough is perhaps another matter. But given the will, a way might well be found. Yet it is the absence of a sufficiently widespread will to achieve a solution which so far has prevented all advance towards any agreed Antarctic settlement. If willingness enough were present then the alternative modes of advance are not lacking in number or novelty.

5. The Functional Approach. The last possibility here to be discussed may be termed the 'functional approach' to Antarctica's political future; and Jenks appears to be the only competent person so far to publicize it. Some see special advantage in the technical rather than political approach. Yet the reminder may again be given that the various possibilities for Antarctic advance here being described are not necessarily mutually exclusive nor are they necessarily whole-continental in scope. A particular point, it might be argued, in favour of this functional approach is that it involves in the first instance no more than a recognition of general objectives, without there being need to define them too closely in advance. Jenks states:

> It is a weakness of all these approaches that they seek to solve the problems of Antarctica by transplanting ideas evolved elsewhere rather than by evolving a régime based on the problems and needs of Antarctica itself.
>
> It would seem probable, moreover, that all of these approaches to the problem of devising an international régime for Antarctica would be calculated, for varying reasons, to maximize the difficulties of securing agreement upon such a régime without presenting any compensatory advantage. In so far as they involve any element of partition or of recognition of existing rights and claims, they pose the problem of conflicting claims in its most acute form. Government by a consortium of Powers would tend to project political problems into Antarctica in a most undesirable manner, and direct administration of Antarctica by the United Nations, even assuming that the difficulty that there is no express provision for such direct administration in the Charter could be overcome under present conditions, would represent so novel and far-reaching a departure that it is unrealistic to conceive of its acceptance except as an element in a general political settlement of world wide scope.
>
> It would therefore seem desirable to explore an entirely different approach. It need not be assumed that an international régime for Antarctica must necessarily be based on existing concepts of territorial sovereignty and trusteeship. Such a régime might develop on a functional basis in some form peculiarly appropriate to the needs of uninhabited territories unsuitable for normal habitation in which it is desired to provide certain common international services†.

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* *Ibid.*, p. 417.

† *Ibid.*, pp. 417-8.

The special feature claimed for this functional approach is that it would endeavour to meet all legitimate needs not by creating novel machinery but by extending the present scope of already existing international technical bodies. In general these bodies may be regarded as working unexpectedly well in the difficult world of today. Such use of existing international bodies could be forwarded under a general blessing from U.N.O. but without any need to set up new U.N.O. machinery. Nations with sovereign rights and claims in Antarctica might be prepared to reserve their positions in the contemplation of a decade of functional management by international technical bodies. By the end of the decade the sovereign rights and claims might seem to be of less importance*.

It is convenient to take in turn, and for example, some of the matters for which it would seem important to make provision. Most of the examples are taken from Jenks but a few further points are added. A first step would be aimed at the prevention of acts which might endanger the peace of the southern hemisphere—a danger whose extent it is at this stage difficult to define. There might be a general willingness to reach an agreement, like that already existing since January 1949 between the United Kingdom, Argentina and Chile that they see no reason to send warships, other than those customarily employed in routine duties concerned with the relief of stations south of 60° south latitude. The fact that that agreement, made not under the happiest of auspices, has been annually† extended may lend encouragement to some who doubt. The further acceptance of some form of inspection by aerial photography might be relevant, and certainly more easily attained sooner rather than later.

As to the needs of law and order in Antarctica, the absence of indigenous inhabitants has the advantage that there would be no need to arrange in any way for the setting up of courts of law or of a police force. There would perhaps have to be arrangements to cover civil transactions, perhaps even in a few years time the solemnization of matrimony between radio operators. To meet such contingencies Jenks proposes the *ad hoc* building of a code along the lines of the gradual development of maritime law.

Aviation needs and facilities could be built gradually upon the sound existing foundation of I.C.A.O.—the International Civil Aviation Authority. Likewise meteorological services and needs could be built upon, and as an extension of, W.M.O.—the World Meteorological Organization —which already works so admirably. And in like manner could be extended the work of the existing International Telecommunications Convention and Regulations. Similarly again there could be a small extension of the present International Whaling Convention to cover all Antarctic biological matters.

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* See *Polar Record*, vol. 8, no. 56, 1957, p. 461.

† A variant theoretical possibility might be advance with the aid of an *ad hoc* International Scientific Commission. Existing rights and claims would be reserved and anti-militarization clauses agreed.

As to mineral resources, there is yet little if any real stimulus to activity in view of the expense, physical difficulties and lack of great early promise. The stimulus, in so far as it has existed in the mineral sense, has been the negative one of fearing that a rival might gain the lead. So, Jenks points out, now is the time to make an agreement for the future—now before there is any more positive stimulation. He suggests that nations might be willing for title to be vested in U.N.O. itself, which might in the long run issue licenses for exploitation. The same procedure Jenks would extend to matters concerning the continental shelf, a formation which in certain other parts of the world comes into growing prominence as technical experience of its mineral exploitation increases. In any event, very deep water lies close to the continental periphery, so that in general the shelf is abnormally narrow. Again it might well be easier to gain general agreement sooner rather than later.

International co-operation and co-ordination in scientific research is being admirably tested during the present International Geophysical Year, which in any event is likely to be extended at least in part for a further period. Thus, further research under the good auspices of the existing International Council of Scientific Unions, possibly with U.N.E. S.C.O. help, might be internationally agreeable. Along such lines then is the Jenks functional approach to the Antarctic problem.

VIII. CONCLUSION

This review of present national motivation and activity must surely have led to the realization that stability in Antarctic affairs is today a fiction. It must surely further have become evident that the passage of time is likely to make the problems for the present five mutually-recognizing sovereign powers in Antarctica more rather than less difficult. If that is indeed the conclusion—as it surely must be—then the sound immediate step would seem to lie in deep and realistic consultation, first between the British Commonwealth nations concerned—New Zealand, Australia and the United Kingdom—all having much to gain by joint rather than isolated action. By that means a workable common front might be presented to the world. By that means might initiative be seized in relation to discussions with France and Norway, with other friendly nations and world opinion, if an earlier and more simple settlement has not already been achieved.

By such consultation and realistic agreement might the three British Commonwealth Antarctic nations both serve their own national interests and at the same time nurture a worthy, internationally acceptable and lasting arrangement for Antarctica.

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Bertram, G.C

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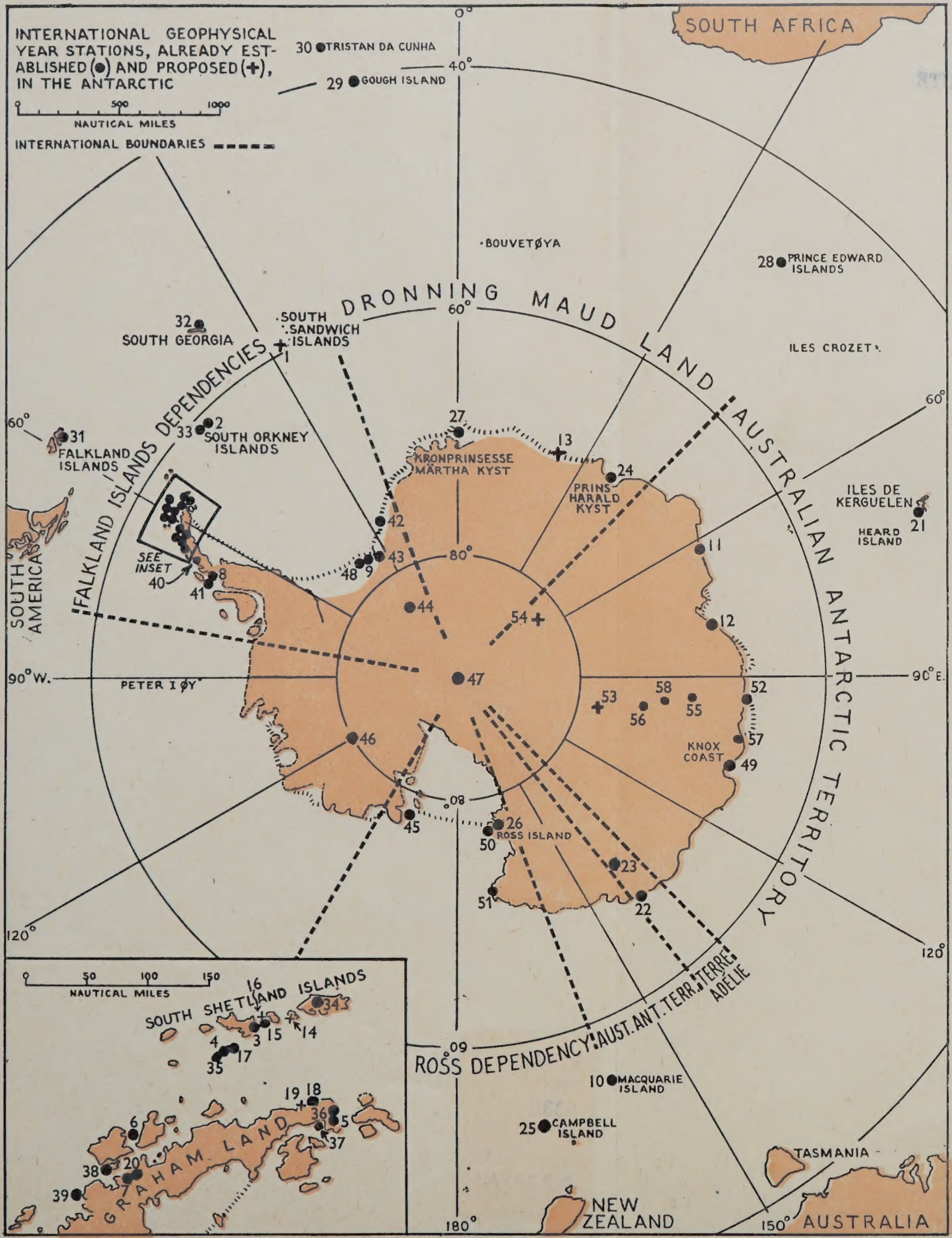

INTERNATIONAL GEOPHYSICAL YEAR STATIONS IN ANTARCTICA AND THE SUB-ANTARCTIC ISLANDS

(*Key to map opposite*)

ARGENTINA

1 “Teniente Esquivel”, Thule Island, 59° 27′ S., 27° 16′ W.
2 “Orcadas”, Laurie Island, 60° 45′ S., 44° 43′ W.
3 “Teniente Camara”, Half Moon Island, 62° 36′ S., 59° 57′ W.
4 “Decepción” or “Primero de Mayo”, Deception Island, 62° 59′ S., 60° 42′ W.
5 “Esperanza”, Hope Bay, 63° 24′ S., 56° 59′ W.
6 “Melchior”, Gamma Island, 64° 20′ S., 62° 59′ W.
7 “Almirante Brown”, Paradise Harbour, 64° 53′ S., 62° 52′ W.
8 “General San Martín”, Barry Island, 68° 08′ S., 67° 07′ W.
9 “General Belgrano”, Filchner Ice Shelf, 77° 59′ S., 38° 44′ W.

AUSTRALIA

10 Macquarie Island, 54° 30′ S., 158° 57′ E.
11 Mawson, Mac-Robertson Land, 67° 36′ S., 62° 53′ W.
12 Davis, Princess Elizabeth Land, 68° 35′ S., 77° 59′ E.

BELGIUM

13 Breidvika, Prinsesse Ragnhild Kyst, 70° 15′ S., 23° E., approx.

CHILE

14 Coppermine Cove, Robert Island, 62° 22′ S., 59° 45′ W.
15 “Arturo Prat”, Greenwich Island, 62° 29′ S., 59° 38′ W.
16 Yankee Harbour, Greenwich Island, 62° 32′ S., 59° 47′ W.
17 “Pedro Aguirre Cerda”, Deception Island, 62° 56′ S., 60° 36′ W.
18 “General Bernardo O’Higgins”, Cape Legoupil, 63° 19′ S., 57° 54′ W.
19 “Luis Risopatron”, near Cape Legoupil, 63° 19′ S., 57° 54′ W., approx.
20 “Presidente Gabriel Gonzalez Videla”, Paradise Harbour, 64° 49′ S., 62° 52′ W.

FRANCE

21 Port-aux-Français, Îles de Kerguelen, 49° 20′ S., 70° 14′ E.
22 “Dumont d’Urville”, Terre Adélie, 66° 40′ S., 140° 01′ E.
23 “Charcot”, Terre Adélie, 69° 30′ S., 140° E., approx.

JAPAN

24 “Showa”, Ongul Island, 69° 29′ S., 39° 35′ E.

NEW ZEALAND

25 Campbell Island, 52° 33′ S., 169° 09′ E.
26 “Scott”, Pram Point, 77° 50′ S., 166° 44′ E.

NORWAY

27 Kronprinsesse Märtha Kyst, 70° 30′ S., 2° 15′ E.

SOUTH AFRICA

28 Marion Island, Prince Edward Islands, 46° 53′ S., 37° 52′ W.
29 Gough Island, 40° 19′ S., 9° 54′ W.
30 Tristan da Cunha, 37° 03′ S., 12° 18′ W.

UNITED KINGDOM

31 Stanley, 51° 42′ S., 57° 52′ W.
32 Grytviken, South Georgia, 54° 17′ S., 36° 30′ W.
33 Signy Island (Base H), South Orkney Islands, 60° 43′ S., 45° 36′ W.
34 Admiralty Bay (Base G), King George Island, 62° 05′ S., 58° 25′ W.
35 Deception Island (Base B), South Shetland Islands, 62° 59′ S., 60° 34′ W.
36 Hope Bay (Base D), Trinity Peninsula, 63° 24′ S., 56° 59′ W.
37 View Point, Duse Bay, 63° 32′ S., 57° 24′ W.
38 Port Lockroy (Base A), Palmer Archipelago, 64° 50′ S., 63° 31′ W.
39 Argentine Islands (Base F), off Graham Coast, 65° 15′ S., 64° 16′ W.
40 Loubet Coast (Base W), 66° 55′ S., 66° 48′ W.
41 Horseshoe Island (Base Y), Marguerite Bay, 67° 49′ S., 67° 17′ W.
42 Halley Bay (Royal Society base), Caird Coast, 75° 31′ S., 26° 36′ W.
43 “Shackleton” (Trans-Antarctic Expedition base), Filchner Ice Shelf, 77° 57′ S., 37° 16′ W.
44 “South Ice” (Trans-Antarctic Expedition advance base), 81° 56′ S., 29° 30′ W.

UNITED STATES

45 “Little America V”, Kainan Bay, 78° 16′ S., 162° 28′ W.
46 “Byrd station”, Marie Byrd Land, 80° S., 120° W., approx.
47 South Geographical Pole.
48 “Ellsworth station”, Filchner Ice Shelf, 77° 43′ S., 41° 07′ W.
49 “Wilkes station”, Vincennes Bay, 66° 35′ S., 109° E., approx.
50 “Williams Air Operations Facility”, Ross Island, 77° 51′ S., 166° 37′ E. (Operational support base)

UNITED STATES/NEW ZEALAND

51 “Adare station”, Cape Hallett, 72° S., 171° E., approx.

U.S.S.R.

52 “Mirnyy”, Queen Mary Land, 66° 37′ S., 93° E.
53 “Vostok”, South Geomagnetic Pole area, Wilkes Land, 78° S., 107° E. approx.
54 “Sovetskaya”, area of so-called “Pole of Relative Inaccessibility”, Enderby Land, 82° S., 55° E., approx.
55 “Pionerskaya”, Queen Mary Land, 69° 44′ S., 95° 30′ E. (Operational support base)
56 “Komsomolskaya”, Princess Elizabeth Land, 74° S., 99° E., approx. (Operational support base)
57 “Oazis”, Queen Mary Land, 66° 30′ S., 101° E., approx.
58 “Vostok-I”, Queen Mary Land, 72° S., 97° E., approx.

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